1324

AGRICULTURAL ENGINEERING

CURRENT LITERATURE

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ENGINEERING

Vol. 1, No. 9. WASHINGTON, D. C. April, 1932.

Air conditioning.

Air conditioning. By William Hull Stangle. Heating and Ventilating. v.29, no.3. March 1932. p.55-61. Pt. 17—Automatic temperature and humidity control. By Realto E. Cherne.

Air conditioning applied to cold storage, and new psychrometric chart. By Claude A. Bulkley. Heating and Ventilating. v.29, no.3. March 1932. p.74-75.

Air conditioning for small homes. Ice and Refrigeration. v.81, no.6. December, 1931. p.445. Tentative report of Correlating Committee on Technological Development of President's Conference on Home Building and Home Ownership devotes some space to subject of air conditioning. Report points out that under subject of air conditioning should be included control of temperature and humidity, circulation of air and elimination of dust and harmful gases.

Application of ice for air conditioning for human comfort. By W.F. Otis. Refrigerating World. v.67, no.3. March, 1932. p.19-20, 56-59. Relative costs of mechanical and ice units depend upon individual installations.

Bibliography of articles on use of ice for air conditioning. By Fred I. McCandlish. Ice and Refrigeration. v.82, no.2. February, 1932. p.120-122. Tremendous advance in field is revealed by information contained in these articles. Economic necessity of controlled comfort conditions.

Unit air conditioners. Heating, Piping and Air Conditioning. v.3, no.11. November, 1931. p.965. Each unit is a complete air-conditioning plant in itself including spray nozzles, air re-heater, fan, pump, automatic control, etc. Provides for humidification or dehumidification, air washing, heating or cooling, and uniform distribution of air either with or without ducts depending on location of units.

Associations.

National Association of Practical Refrigerating Engineers. Ice and Refrigeration. v.81, no.6. December, 1931. p.367-380. Report of twenty-second annual convention of association held at Houston, Texas, November 10 to 13, 1931. High standard in interest and educational value of program maintained. Committee reports and papers.

Building construction.

Certified concrete masonry units. By W.D.M. Allan. Commercial Standards Monthly. v.8, no.9. March, 1932. p.283-284. Underwriters' laboratories inspection and certification service helps to maintain products of standard quality.

Closed end clay units of less weight and easier handling. By A.Zierer. Brick and Clay Record. v.80, no.3. March, 1932. p.153, 178. Suggests clay block with five sides closed and sixth open. Besides its advantages in weight and handling, it is claimed to make better wall.

Commercial appraisals: Brief introduction to engineering economics applied. By Frank H. Prouty. Colorado Engineer. v.28, no.3. March, 1932. p.66-67, 115. Consideration should be given to 1. Cost of reproducing building. 2. Depreciation. 3. Effect of obsolescence. 4. Character of construction and equipment. 5. Adequacy. 6. Prognostication of future economic development. 7. Study of fixed charges for maintenance, replacements, etc. 8. Probable future trend of value.

Cost analysis of a small apartment building. By Theodore F. Laist. General Building Contractor. v.3, no.3. March, 1932. p.17-23.

Definite quality grading rules to govern face brick sales. Brick and Clay Record. v.80, no.3. March, 1932. p. 154, 156, 174, 176. American Face Brick Association has issued set of rules by which buyers may judge quality of brick.

Facts about steel that make work quicker, cheaper, safer. By Harold S. Woodward. American Architect. v.141, no.2603. January, 1932. p.54-55, 94. Beams, flanges, holes, girders, sloping roofs.

Proposed standard design for kitchen storage equipment. By Deane G. Carter. Agricultural Engineering. v.13, no.3. March, 1932. p.67-69. Study made at Arkansas Agricultural Experiment Station.

Columbia Basin.

Columbia Basin project. By M. C. Boyer. Colorado Engineer. v.28, no.3. March,1932. p.64-65, 112-113.

Report on the Columbia River and minor tributaries. March 29, 1932. U. S. War Department, Office of Chief of Engineers. 7p. Mimeographed.

Corrosion.

Some fundamental considerations of corrosion in steam and condensate lines. By R. E. Hall and A.R. Mumford. Heating, Piping and Air Conditioning. v.3, no.11. November, 1931. p.943-959. Investigation includes study of raw water and production, distribution and utilization of steam, with reference to heating systems and appliances only. Cause of corrosion trouble in heating systems can be sought in operation and to small extent in design of systems and not in quality of steam used if that quality equals that encountered in these studies.

Cotton.

Federal cotton ginning laboratory at Stoneville, Mississippi. By Chas. A. Bennett. Cotton and Cotton Oil News. v.33, no.14. April 2, 1932. p.6.

Reducing cotton costs. By P.O. Davis. Progressive Farmer. v.47, no.2. January 15-31, 1932. p.10. Advantages of weeders, section harrows and two-horse cultivators: 1. Efficient and effective weed killers. 2. Enable cotton grower to produce other crops along with cotton.

Types of engines for gins. By Orville Adams. Cotton and Cotton Oil News. v.33, no.14. April 2, 1932. p.28-29. Survey of power plants suitable for gin power,

Dairy equipment.

Farm dairy houses. By Ernest Kelly and K.E. Parks. Rev. by R.P. Hotis. Rev. 1932. 12p. U.S. Department of Agriculture. Farmers' Bulletin no.1214.

Farm milk house. By E. H. Parfitt and G.O. Hill. 1931. 5p. Purdue University. Department of Agriculture. Extension. Leaflet no.155.

Milk cooling tanks. By W.C. Krueger. New Jersey Agriculture. v.14, no.4. April, 1932. p.10-11. Table 1: Recommended sizes and capacities of insulated concrete milk cooling tanks. Table 2: Materials for insulated concrete tank.

Dams.

Dams--High, large, and unusual. By P.I. Taylor. Part 2, U.S. Reclamation Era. v.23, no.3, March, 1932. p.58-60. Power dams. Flood-control dams. Texas builds earth dams. Largest dams. How high is a dam?

Dams. (Cont'd.)

Dams--High, large and unusual. By P.I. Taylor. Part 3, Foreign Countries. Reclamation Era. v.23, no.4. April, 1932. p.74-78. France builds 446-foot dam. Spain, Germany, Italy. Chile and Mexico. Canadian power dams. Large foreign dams. Assuan dam raised twice. Unusual construction feature.

Metur Dam, Madras. Engineering. v.133, no.3450. February 26, 1932. p.238-241. Storage will be used for irrigation of 1,000,000 acres of existing rice crops in the Tanjore Delta, and in addition, 301,000 acres of new irrigation.

Drainage.

Development of drainage of Catskills. By Rudolf Ruedemann. American Journal of Science. 5th Series. v.23, no.136. April, 1932. p.337-349.

Seepage and drainage of irrigated land. By H.E. Murdock. 1932. 32 p. Montana. Agricultural Experiment Station. Bulletin no.255.

Underdrainage as protection of crops against drought damage. By Jesse H. Neal. Agricultural Engineering. v.13, no.3. March, 1932. p.64-66. Ultimate purpose of farm drainage is to induce deep rooting as insurance against drought. Owing to fact that clay soils do not naturally furnish quickly available reservoir for storage of moisture to be drawn upon during periods of curtailed rainfall, much of precipitation is apt to be lost as run-off unless artificial methods are used to open up these soils and make them more receptive of moisture. Any attempt to develop moisture reservoir capacity in clay soils against time of drought should employ not only tile drains but also every other known supplementary aid. Among these are included deep tillage, mole drainage, liberal use of such chemical agencies as lime, and, particularly systematic growing of deep-rooting crops such as sweet clover and other period crops having relatively coarse tap roots.

Electricity on the farm.

Agriculture and science. Northwest Farm Equipment Journal. v.46, no.3. March, 1932. p.29-30. One of interesting talks on "Some practical solutions of farm electrification problems", prepared under auspices of rural electrification section of General Electric Company. Talk given by Dr. William R. Whitney.

Chick brooding with electricity. By E.N. Gatlin. Farm and Ranch. v.51, no.4. February 15, 1932. p.23.

Electric brooders. Rural Electrification and Electro-Farming. v. 7, no.81. February, 1932. p.268-269.

Electricity on the farm. (Cont'd.)

Electric brooding works. Successful Farming. v.30, no.4. April, 1932. p.68-69. Statistics from studies made on Wisconsin farms.

Electrified farms are increasing: Editorial. Power Plant Engineering. v.36, no.7. April 1, 1932. p.278. Survey conducted by statistical Research Department of the N.E.L.A. 48,940 additional farms added during 1931.

Farms served with electricity by power companies. Farm Implement News. v.53, no.11. March 17, 1932. p.17. Increase of 48,867 during 1931.

Federal revenue bill puts sales tax of 2¼ per cent on electricity. Electrical World. v.99, no.11. March 12, 1932. p.470.

Power by electric motor. By H.M. French. Southern Power Journal. v.50, no.3. March, 1932. p.39-43. Pt. I. A.C. Induction motors. First of series of articles devoted to electric motor power in plant. First few articles will describe characteristics and applications of important types of motors used. Others will describe application of these motors in specific industries.

Rural electrification institute: Editorial. New England Homestead. v. 104, no.10. March 10, 1932. p.6.

Taxing electricity: Editorial. Power. v.75, no.11. March 15, 1932. p.390. However it may be regarded, this tax will undoubtedly make it more difficult for the utilities to compete with privately generated power.

Erosion.

Gullies: How to control and reclaim them. By C. E. Ramser. Rev. February, 1932. 36p. U.S. Department of Agriculture. Farmers' Bulletin no.1234.

Land erosion in Indiana checked by forestation. Engineering News-Record. v.108, no.13. March 31, 1932. p.462.

Prevent farm deterioration. By C.A. Whittle. Progressive Farmer. v. 47, no.2. January 15-31, 1932. p.10. Keep up terraces on land which you do not expect to put in crops next year and save fertility against day when it is needed.

Suspended net dam. By Q.C. Ayres. Country Gentleman. v.101, no.9. September, 1931. p.22. Eleven dams constructed with center post omitted. End posts set deep and well back into banks were reinforced by "dead men" which were buried in trenches and wired to tops of posts. Three or four strands of No.9 wire were stretched across gully from post to post and twisted together to form light cable, drawn reasonably taut. Strips of woven wire fencing were

Erosion. (cont'd)

securely attached to cable and wired to each other. Enough strips were used to reach entirely across gully, but no excavation was needed to embed wire in banks. Strips were cut long enough to swing back and form mat along and in contact with bottom and sides of gully for distance of about eight feet upstream where they were anchored to numerous small stakes. Construction results in loose-hanging flexible curtain or net which effectively protects every part of gully cross section and automatically forces main thread of current to center. Light dressing of straw was placed in bottom of net to "prime" dam to catch its initial deposit of silt and debris.

Evaporation.

Evaporation rates of organic liquids. By Harry E. Hofmann. Industrial and Engineering Chemistry. v.24, no.2. February, 1932. p.135-140. Simple method of determining evaporation rates is suggested which gives reproducible results on solvents whose evaporation rates are determined on different days with widely varying climatic conditions; these rates are compared with those obtained by the usual method. Approximate formula for predicting evaporation rates is given.

On the water vapor in the atmosphere over the United States east of the Rocky Mountains. By Louis P. Harrison. Monthly Weather Review. v.59, no.12. December, 1931. p.449-472. Purpose of investigation: 1. Provide practical method of computing total mass of water vapor in lower strata. 2. Deduce empirical equations based upon mean values of available data for lower strata for purposes of extrapolation to obtain tentative approximations of mass of water vapor in higher layers of troposphere. 3. Ascertain and study average distribution of water vapor in lower strata of atmosphere over U.S. east of Rocky Mountains.

Extension.

Engineering extension aid. By S.H. McCrory. Extension Service Review. v.3, no.3. March, 1932. p.33-34. Engineering practices; Drainage; Land clearing; Building plans; Home improvement; Controlling soil erosion.

Farm buildings.

Homestead planning on Federal Reclamation Projects. By L.H. Mitchell. Reclamation Era. v.23, no.4. April, 1932. p.82-83. Features to be considered: 1. Location with respect to highways. 2. Surface water drainage. 3. Underground water. 4. Prevailing winds. 5. Location of trees.

Farm buildings. (cont'd)

A place to keep the old bulls. By A.R. Merrill. New England Homestead. v.104, no.9. February 27, 1932. p.5, 7-8. Safety pens provide safe handling, proper exercise, and better breeding facilities. Diagram gives specifications for breeding rack.

Representative plans for farm houses: Extract from report submitted to President's Conference on Home Building and Home Ownership. By Committee on Farm and Village Housing. 1931. 8p. Mimeographed. U. S. Bureau of Agricultural Engineering.

Research in farm structures. By Henry Giese. 1932. 52p. U. S. Department of Agriculture. Miscellaneous Publication no.133.

Farm machinery and equipment.

Agricultural machines and farm progress, By E.T. Leavitt. Farm Implement News. v.53, no.12. March 24, 1932. p.14-15. Phases in development of power farming: 1. Building of power unit itself. 2. Development of machinery suited to unit required. 3. Proper application of power and machinery to varying farm conditions.

Can I use profitably today the farm machinery of yesterday? Fundamental factors determining proper and profitable use of farm machinery. By F.A. Wirt. Better Farm Equipment and Methods. v.4, no.8. April 1932. p.10-11, 33-34. Parts 2 and 3. Relation of power and machinery to farm profits. Farm machinery of today.

Combines and shockers: Editorial. Farm Implement News. v.53, no.13. March 31, 1932. p.8. Limitation of combine, so far as diversified farming section of country is concerned, is that it is machine designed and priced to fit 500 acre or larger farm offered in sections where 80 to 160 acre farm is economic family unit. Combines not straw savers and straw in many feeding sections is as valuable and necessary as grain.

Cost cutting equipment makes farming profitable. Farm Implement News. v. 53, no.11. March 17, 1932. p.15. Timeliness is the essence of good farming so that farmer should be sure that power will be such that he will have margin of safety for his work.

Cutting the cost of cultivation. By E.T. Leavitt. Farm Implement News. v.53, no.13. March 31, 1932. p.12.

Cutting costs with farm machinery. By E.T. Leavitt. American Agriculturist. v.129, no.6. February 6, 1932. p.9. Nearly everyone can make some changes, some new plans this coming year, which will help them to take advantage of an hoped for higher prices on farm products in order to increase their net profit.

Farm machinery and equipment. (cont'd)

Discrediting tractor knockers: Editorial. Farm Implement News. v.53, no.13. March 31, 1932. p.8.

Farm equipment's future. By Alex. Legge. Farm Machinery and Equipment. no.1778. February 15, 1932. p.5-6.

Farm machinery: Editorial. California Cultivator. v.78, no.8. February 20, 1932. p.170. Farm machinery has made the farm a better place on which to live.

Farm machinery firms are consolidated. Farm and Ranch. v.51, no.2. January 15, 1932. p.20. Advance-Rumely Thresher Company purchased by Allis-Chalmers Manufacturing Company.

Future of implement industry. Address of L.W. Pierson. Northwest Farm Equipment Journal. v.46, no.3. March, 1932. p.24-25.

Garden equipment prospect: Editorial. Farm Implement News. v.53, no.12. March 24, 1932. p.10.

Harvesting field peas with combine. By Hobart Beresford and E. N. Humphrey. 1932. 16p. Idaho Agricultural Experiment Station. Extension Bulletin no.85.

Hay crushed at cutting. By Roy Bainer. Country Gentleman. v.101, no.9. September, 1931. p.22. Developed and built by Mr. E. B. Cushman, San Jose, California. Machine so constructed that cut hay falls from cutter bar onto draper instead of onto ground. Draper then elevates hay to rear of machine, where it passes between two rubber-covered steel rolls. These rolls resemble wringer on washing machine. Tension on rolls is maintained by two 2000-pound springs. After passing through rolls, hay drops back to ground. Both stems and leaves are crushed.

His majesty, price: Editorial. Montana Farmer. v.19, no.14. March 15, 1932. p.6. Without some federal program for permanently holding poorer lands out of cultivation, commodity price is bound to be far more powerful influence in land utilization than Department of Agriculture poachments, soil survey information or any other factor.

Implement sales tax - exempt: Editorial. Farm Implement News. v.53, no.12. March 24, 1932. p.10.

Farm machinery and equipment. (cont'd)

Improved V-type ditcher. By John M. Rotan. Farm and Ranch. v.51, no.4. February 15, 1932. p.14. Illustrated.

Is machinery too high? Manufacturers tell their side of the case. Oregon Farmer. v.54, no.7. February 18, 1932. p.11.

It's bushel cost that counts. By E. T. Leavitt. Implement and Tractor Trade Journal. v.47, no.6. March 12, 1932. p.11, 28. New Machinery inexpensive when figured on proper basis, but old equipment frequently loses more than cost of new.

Junk the "fence corner" junk: Removal of unsightly machines will eliminate unfair charge of wastefulness and improve farmers' chances for credit. Implement and Tractor Trade Journal. v.47, no.6. March 12, 1932. p.10, 12.

"Junk the junk": Discarded implements add to unsightliness of farms and affect owners' credit standing. Proper care lengthens life of machinery and insures satisfaction. Opportunity for agricultural workers to foster and promote "clean-up" campaigns. Better Farm Equipment and Methods. v.4, no.8. April, 1932. p.5, 31-32.

Maximum results from timely work. By E. T. Leavitt. Farm Implement News. v.53, no.11. March 17, 1932. p.14. Stresses need for individual farmer to fit his equipment to his operations, so that he will get most from his machines.

Neue Versuche mit der "Schlayer-Heliaks" Dreschmaschine. Aus den Arbeiten des R K T L. Technik in der Landwirtschaft. v.12, no.5. May, 1931. p.148-149. Recent experiments with the "Schlayer-Heliaks" threshing machine. In this machine, threshing, shaking and separation of grain is simultaneously accomplished inside of long stationary cylinder. Shaft with several beaters mounted spirally, beats grain out of straw. Straw is moved by spiral arrangement of beaters and warm conveyor to blower and discharged. Power requirement for this machinery is comparatively high, principally because of fine breaking up of straw.

New corn harvester. By A.A. Applegate. Country Gentleman. v.101, no.9. September, 1931. p.22. Invented by Ralph L. Patty and D. E. Wiant, South Dakota State College professors. Consists of stationary husker, elevator and husk blower located at cribs, and four-row corn snapper. In several trials, snapper-husker capable of harvesting approximately 160 bushels of corn an hour.

Farm machinery and equipment. (cont'd)

New equipment gives promise of better times: Cost reducing machines and appliances noted. By E. T. Leavitt. Wisconsin Agriculturist. v.59, no.4. February 20, 1932. p.3, 10.

New moves in rotary cultivation: Editorial. Implement and Machinery Review. v.57, no. 683. March 1, 1932. p.1067-1068.

Power farming saves time: Editorial. v.59, no.4. February 20, 1932. p.4. Greater the number of horsepower employed per worker, larger the crop value per worker.

Putting power to greater work. By E.T. Leavitt. Implement and Tractor Trade Journal. v.47, no.7. March 26, 1932. p.9. Return per hour on labor is bigger factor in agricultural profit than selling prices of farm products.

Reply to Mr. O'Neal's suggestions. By Arnold P. Yerkes. Agricultural Engineering. v.13, no.3. March, 1932. p.81-82. Relative to testing of farm machines by agricultural colleges.

Saving labor on the vegetable farm: Modern improved equipment is one of main aids in lowering production costs. By Paul W. Dempsey. New England Homestead. v.104, no.10. March 5, 1932. p.5, 15.

Some practical points in farm mechanization: Editorial. Implement and Machinery Review. v.57, no. 683. March 1, 1932. p.1066-1067.

To plow vetch or peas under use wide bottom plow with rolling coulter. By J.B. Wilson. Progressive Farmer. v.47, no.6. March 15-31, 1932. p.3.

Fences.

Fence posts may be treated on the farm. Idaho Farmer. v.49, no.7. February 18, 1932. p.9.

Good fences pay their way. By A.F. Magdanz. Nebraska Farmer. v.74, no.6. March 19, 1932. p.22.

Tractor-built fences. By Cap. E. Miller. Successful Farming. v.56, no.4. April, 1932. p.25, 37.

Fertilizers.

Fertilizers for vegetable crops. By F.O.Underwood and J.E.Knott. 1932. 8p. N.Y. Cornell Extension bulletin no.230.

Flood control.

Flood-water protection for Birmingham. By W.Gordon Kuster. Manufacturers Record. v.101, no.9. March 3, 1932. p.28-29.

Flow of water and gases.

Flow of water in rubber lined hose. Power. v.75, no.14. April 5, 1932. p.518. Based on Hazen and Williams formula with C -140.

Grid-constricted orifice. Mechanical Engineering. v.54, no.4. April 1932. p.286-287. New apparatus for measuring flow of water. It is claimed that loss of pressure in this apparatus is less than in case of Venturi tube. Basic principle of this device consists in subdivision of area of orifice into number of smaller ones, each of which is section varying like Venturi tube. Passages therefore decrease in cross-section indirection of flow until they reach certain minimum area, and then expand gradually.

Intake vortex eliminated by novel screen design. By T.W.Espy. Engineering News Record. v.108, no.12. March 24, 1932. p.431. Horizontal cylindrical screen overcomes low water problems of intake swirls, entrapped air and resulting loss in conduit capacity.

Measurement of the flow of gases and vapors. By Barnett F. Dodge. Industrial and Engineering Chemistry. v.24, no.3. March 1932. p.261-273. Review of some of modern methods for continuously measuring and recording gas flow which are in extensive use. Term "gas" includes condensable vapors, such as steam, but discussion will refer more specifically to gases not condensable at ordinary atmospheric conditions.

Forage drying.

Results of 1931 artificial drying studies. By Russell H.Reed. Agricultural Engineering. v.13, no.3. March 1932. p.69-70. Progress in the development of equipment and methods for artificial drying of grain and forage crops suggests radical changes in agricultural map of U.S. favorable to areas of high summer humidity and rainfall.

Season's test of a hay drier. By Arthur W.Clyde. Agricultural Engineering. v.13, no.3. March 1932. p.61-63. Tests conducted at Pennsylvania Agricultural Experiment Station.

Frost protection.

Correcting the smudge evil. California Cultivator. v.78. no.7. February 13, 1932. p.155, 167. Discussion of tests made at University of California on orchard heaters and the modernizing of old type.

Heating.

American Society of Heating and Ventilating Engineers Guide, 1932. 1932. 876p.

Basic laws and data on heat transmission. By W. J. King. Pt.II. Mechanical Engineering. v.54, no.4. April, 1932. p.275-279, 296. Conduction.

Better heat from cheaper coal with blower. Popular Mechanics. v.57, no.2. February, 1932. p.246-247. Research by A.S.H.V.E. has developed inexpensive electric blowers which are efficient in providing forced draft in heating plant and which will reduce annual coal bill from one-third to one-half or more where properly used.

Heating in residences and small structures. By H.L. Alt. Pt.VIII. Domestic Engineering. v. 138, no.5. March 5, 1932. p.41-43, 104.

Importance of radiation in heat transfer through air spaces. By E.R. Queer. Heating, Piping and Air Conditioning. v.3, no.11. November, 1931. p.960-965. Paper summaries results of comprehensive series of tests carried on at Engineering Experiment Station of Pennsylvania State College.

Mechanical analysis: Automatic and industrial oil burners, boiler-burner units, and furnace-burner units. Fuel Oil Journal. v.10, no.10. April, 1932. p.58-80.

Principles of calculation of low-temperature radiant heating. By A. H. Barker. Heating and Ventilating. v.29, no.3. March, 1932. p.48-54.

Transmission of heat. By John T. Wade. Refrigerating World. v.67, no.3. March, 1932. p.17-18.

Hotbeds.

Electric heated hotbeds. By C.H. Nissley. Rural New Yorker. v.91, no.5205. March 26, 1932. p.311. Heat is supplied through lead-coated resistance wires spaced every 5 to 6 in. apart and 6 in. under surface soil. In making bed, 7 to 8 in. of soil is removed and ground leveled. Inch of sand or fine cinders is

Hotbeds. (cont'd)

spread over bottom, wires are laid in position, another layer of sand or gravel is placed over wires and from 4 to 5 in. of composted soil filled in. Wires are laid in series of about 72 to 78 ft. in length. This length is necessary so as not to produce too great heat. Desired temperature of soil is regulated by heat thermostat, which works automatically.

Fire heats soil in hotbed: Construction of bed warmed by flues is outlined. Washington Farmer. v.66, no.9. March 3, 1932. p.11.

Hotbed construction. By Sumner D. Hollis. Rural New Yorker. v.91, no.5204. March 19, 1932. p.288.

Soil heating experiments at Cheshunt. Rural Electrification and Electro-Farming. v.7, no.81. February, 1932. p.270-272. Impartial investigation is being carried out by Dr. Bewley as to possibility of fuller utilization of electricity for soil heating, and brief description of his work.

Houses.

Housewife is entitled to a break. Washington Farmer. v.66, no.11. March 17, 1932. p.3, 14. Discussion of farm house planning.

Low-cost residences. By Theodore Crane. General Building Contractor. v.3, no.3. March, 1932. p.36-41. Economical design for inclosures needed having adequate structural strength, impervious to rain and wind, fire resistant, low in heat transmission and suited to utilitarian and architectural requisites of home construction.

Size of rooms in five-room ready-cut houses. By Dan Scoates. Agricultural Engineering. v.13, no.3. March, 1932. p.78.

Houses, Remodeling

A 100-year-old home becomes young again. By Majorie Reid Rodes. Better Homes and Gardens. v.10, no.4. December, 1931. p.16-17.

Hydraulics.

National hydraulic laboratory. Hydraulic features--Reasons for design adopted. By Herbert N. Eaton. Mechanical Engineering. v.54, no.4. April, 1932. p.263-266. Article confined mainly to consideration of technical questions of design.

Insulation.

Steel backing for brick makes better house. Popular Mechanics. v.57, no.2. February, 1932. p.264. This interior construction not

Insulation. (cont'd)

only eliminates all lath, joint and stud marks, retards sound, prevents infiltration of moisture and air and greatly reduces tendency to crack, but adds strength. Entire home is wrapped in efficient insulation and incased in network of steel wire, which takes up strains and stresses in every direction.

Structure and electrical properties of insulating materials. By John Warren Williams. Journal of Physical Chemistry. v.36, no.1. January, 1932. p.437 - 433.

Irrigation.

Explosives help to irrigate Wyoming farmlands. By F.J. McGanney,Jr. Explosives Engineer. v.10, no.3. March, 1932. p.96-97.

Influence of irrigation head and length of run on use of water for alfalfa. By Dean W. Bloodgood and Albert S. Curry. New Mexico Agricultural Experiment Station. Bulletin 197. 1931. 10p. Investigation of such features as long versus short length of plots, large versus small heads of water and effect of these factors on such use.

Irrigation and related cultural practices with cotton in the Salt River Valley of Arizona. By Stephen H. Hastings. U.S. Department of Agriculture Circular no.200. 1932. 32p.

Some economic aspects of western federal irrigation. By Porter W. Dent. Reclamation Era. v.23, no.3. March, 1932. p.47-48. Overproduction not increased by federal reclamation; Irrigation benefits humid sections industrially.

Used pipe system for irrigating up. By W. A. Nelson. Through the Leaves. v.20, no.2. March, 1932. p.57. Points emphasized: 1. Sooner irrigating is done, if needed, better the results. 2. Small streams for each row. 3. Short runs. 4. Avoid over-irrigation. 5. Man always on job. 6. Mulching surface immediately after.

Land.

Back to public ownership. By Carl E. Ladd. Farm Journal. v.56, no.4. April, 1932. p.7-8, 22. We are through with settling country - new policy of abandoning worthless land is now necessary.

Classifying land: Editorial. Montana Farmer. v.19, no.13. March 1, 1932. p.6.

Land. (cont'd)

Land as an investment. By R. E. Stephenson. California Cultivator. v.78, no.8. February 20, 1932. p.176-177. Farmer at best has many risks, but it is doubtful whether percentage of failures on farm is greater than in business world generally.

Lubrication.

Lubrication research of the American Society of Mechanical Engineers. By A.E. Flowers and M.D. Hersey. Mechanical Engineering. v.54, no.4. April, 1932. p.269-270.

Reclaiming lubricating oil in a refrigerating plant. Power. v.75,no.13. March 29, 1932. p.468. Reclaiming process is as follows: Approximately 35 gal. of dirty oil is put into treating tank and heat turned on. To this is added 3 gal. of hot water into which has been thoroughly dissolved two standard packages of ordinary washing powder and mixture is well stirred to be sure that washing powder solution is thoroughly distributed. Mixture is brought up to and maintained at temperature of 200 to 210 deg. F. for one hour, being stirred now and then. Heat is then turned off and batch allowed to settle for 48 hours. At end of time heat is again turned on to warm up oil before it is run through centrifuge. Considerable quantity of muck is drained out of bottom of treating tank after all of oil has been run through centrifuge.

Meters.

Electric meters. By V.N. Friedman. Southern Power Journal. v.50, no.4. April, 1932. p.43-46. Description of fundamentals of electric meters. Historical development of important meters in use today is given, as well as practical information concerning them and their characteristics.

Precision measurements of mechanical dimensions by electrical measuring devices. By A.V. Mershon. General Electric Review. v.35, no.3. March, 1932. p.139-144. Electric gauges for measuring diameters--Combination electric gauges for making two or more measurements at the same time--Electric sizing control used to automatically machine parts to given dimension--Electric matching control used to machine parts to existing masters--Strain gauge used to measure change in length of structural member--Vibration and pressure detectors used for recording transient mechanical dimensions.

Miscellaneous.

Agricultural outlook for 1932. Prepared by staff of Bureau of Agricultural Economics, assisted by representatives of agricultural colleges and Extension Services and Federal Farm Board. 1932. 110p. U.S. Department of Agriculture. Miscellaneous Publication no.144.

Miscellaneous. (cont'd)

Another university falls in line. Agricultural Engineering. v. 13, no.3. March, 1932. p.86.

Centralization at Washington: Editorial. Engineering News-Record. v.108, no.11. March 17, 1932. p.383-384. As a whole, reorganization presents problem of such magnitude that satisfactory solution can be reached only after thorough study and discussion. Prospective delay in carrying it out is therefore not altogether regrettable.

Commerce yearbook, 1931. Washington, U.S. Government Printing Office, 1931. 696p. v.1 -- United States.

Commercial and industrial organizations of the U.S, Rev. ed., September, 1931. 1931. 386p. U.S. Bureau of Foreign and Domestic Commerce. Domestic Commerce Series no.5.

Economic and sociological research in the agricultural experiment stations: Editorial. Experiment Station Record. v.66, no.4. March, 1932. p.301-304.

Economics of engineering. Agricultural Engineering. v.13, no.3. March, 1932. p.72. From practical point of view, economics of engineering become largely matter of recognizing importance which "fixed charges on investment" bear to ultimate value of enterprise.

How big is an acre? All are equal in square rods but not in production or profits. By H. A. Huschke. American Agriculturist. v. 129, no.3. January 16, 1932. p.3, 18.

National Bureau to register engineers is organized: Registration in national bureau is expected to aid in developing reciprocity among state licensing boards. Plan is one step in larger program for raising professional standards. Engineering News-Record. v.108, no.11. March 17, 1932. p.403. Editorial p.385.

New farm economy may lead business recovery. By C.S. Burton. Magazine of Wall Street. v.49, no.10. March 5, 1932. p.585-587, 632. Small farm aptitude for growing many things for home building with diligence and patience means a sound way out of depression--individual stabilization.

New York State 1932 Agricultural Outlook. By V.B. Hart, M. C. Bond, L.M. Vaughan, and P.V. Kepner. 1932. 16p. Cornell Extension Bulletin no.227. Most important adjustments needed in New York agriculture are those of reducing costs of distribution and of producing farm products with less hours of labor.

Miscellaneous. (cont'd)

Problems confronting the engineering profession. By Frank B. Jewett. Mechanical Engineering. v.54, no.4. April, 1932. p.245-248. Under circumstances in which we find ourselves, it seems to me that if people of world are to live happily in years ahead, and if their affairs are to be ordered in measurably decent fashion, better general understanding of things of science and engineering is imperative. It must be understanding which in some measure enters into our collective thinking and into our acts as group of human beings bound together by what we commonly call political ties. If this premise is correct it would appear that engineer must of necessity play increasingly important part in general scheme of things, since he is only man who in general has that full understanding of facts of science as applied to affairs of everyday life which is necessary for proper operation of new controls.

Public engineering efficiency: Editorial. Engineering News-Record. v.108, no.12. March 24, 1932. p.421.

Pulleys. By W. F. Schaphorst. Refrigerating World. v.67, no.3. March, 1932. p.35-36. Large ones are more economical.

Repairing harness. By F.G. Behrends. 1932. 37p. N.Y. Cornell Extension bulletin no.225.

Research for industrial pioneering. By John P. Ferris. Mechanical Engineering. v.54, no.4. April , 1932. p.245-248.

A review of Civil Engineering projects under A.S.A. procedure. A.S.A. Bulletin. v.3, no.3. March, 1932. Pt. I. p.102-108. Fifth of a series of reviews of standardization projects under procedure of American Standards Association.

Some suggestions for specification writers. By Charles A. Carpenter. Heating and Ventilating. v.29, no.3. March, 1932. p.46-47.

Stabilization of alluvial rivers in India. By Sir Gordon Hearn. Engineering News-Record. v.108, no.11. March 17, 1932. p.393-395. Observations upon problems involved in checking meanderings of rivers in alluvial plains as related to problems on the Mississippi.

Successful farm practices in the upper peninsula. By G.W. Putnam. 1931. 69p. Michigan Agricultural Experiment Station. Special Bulletin no.215.

Survey of the activities of the Department of Commerce, on the occasion of the 29th anniversary of its organization. United States Daily Supplement. v.7, no.21. March 28, 1932. 22p.

Miscellaneous. (cont'd)

There are many leaks on the farm and it's high time to plug up the holes. By Webb Tatum. Progressive Farmer. v.47, no.5. March 1-14, 1932. p.3.

Truck great factor in farm freighting. Public Roads. v.13, no.1. March, 1932. p.19. Based on survey made by Bureau of Agricultural Economics.

University of Illinois changes department name. Agricultural Engineering. v.13, no.3. March, 1932. p.87.

Washington farm outlook for 1932. Timely Economics Information for Washington Farmers. No.5. February, 1932. 20p.

Potatoes.

Made potato costs study in state in 1930. By K.T. Wright. Michigan. Agricultural Experiment Station. Quarterly Bulletin. v.14, no.3. February, 1932. p.136-140. Figures show table stock producers lost money on that crop.

Poultry houses.

Poultry house insulation. Wisconsin Agriculturist. v.59, no.3. February 6, 1932. p.18.

Three-story house for egg production: Large-producing units increasing in number. Wisconsin Agriculturist. v.59, no.3. February 6, 1932. p.3.

Pumps.

Report. Kansas State Board of Agriculture. Division of Water Resources. 1931. 44 p. Description of some of the most common types of pumping plants in Kansas with approximate costs of construction.

Vacuum heating pumps--their installation and operation. By John A. Masek. Heating and Ventilating. v.29, no.3. March, 1932. p.31-36. Brief explanation of function and rating of vacuum pump with some detailed do's and don'ts regarding layout of pump and its connected piping. Valuable suggestions concerning foundation for pump and use of instruments in return line.

Reclamation.

Are efforts of Bureau of Reclamation worth cost? By L.H. Mitchell. Reclamation Era. v.23, no.3. March, 1932. p.62-63.

Federal reclamation. By Mae A. Schnurr. Reclamation Era. v.23, no.3. March, 1932. p.50-51.

Normal flow and storage Snake river and tributaries, 1931. Reclamation Era. v.23, no.3. March, 1932. p.54.

Reclamation. (cont'd)

Summary of 1931 legislation in California concerning matters of interest to Bureau of Reclamation. By Richard J. Coffey. Reclamation Era. v.23, no.3. March, 1932. p.53-54. Irrigation districts; Water conservation districts; County water districts; Water commission act; Injuring irrigation works; Taxes.

Summary of session laws of Colorado, 1931, of interest from viewpoint of Federal Reclamation. By Armand Offutt. Reclamation Era. v.23, no.4. April, 1932. p.72-73, 78.

Refrigeration.

Application of refrigeration to heating and cooling of homes. By A.R. Stevenson, Jr., F.H. Faust and E.W. Roessler. General Electric Review. v.35, no.3. March, 1932. p.145-153. Heat-pump principle--Thermal and mechanical analyses--Economic and technical problems of application service when cooling--Service when heating--climatic factors--Costs.

Eutectic refrigeration. Ice and Refrigeration. v.82, no.3. March, 1932. p.207. Development of Waltham Systems, Inc., Buffalo. Triangular shaped cans which are nothing more or less than refrigeration storage batteries. Container presents largest amount of exposed surface to air circulation, and permit on account of size and shape greater refrigeration effect. Insulated with dry zero insulation.

Freezing temperatures of some fruits, vegetables and cut flowers. By R.C. Wright and George F. Taylor. Refrigeration, Cold Storage and Air-Conditioning. v.2, no.10. January, 1932. p.22-23. Tables give freezing points of fruits and vegetables.

Fresh-N-Ice, new quick-freeze process. Ice and Refrigeration. v.81, no.6. December, 1931. p.475-476. New method of quick-freezing fruits and vegetables demonstrated at San Antonio Convention of National Association of Ice Industries. Process designed to be used in any commercial ice making plant. Food material submerged in liquid and frozen. Used by fruit and vegetable packers.

Official refrigeration service manual. By L.K. Wright. N.Y. Gernsback Publications, Inc., Pub., 1931. 352p.

PakIce and its application. By W.H. Taylor. Ice and Refrigeration. v.81, no.6. December, 1931. p.434-438. Detailed explanation of machine designed to make granulated ice and uses of product. Manufacture and use of ice briquettes. Possible saving in use of PakIce.

Physiological and pathological research and its relation to perishable food conservation. By D.F. Fisher. Ice and Refrigeration. v.82, no.2. February, 1932. p.77-79. Steps to preserve fruits and vegetables at point of growth--Use of specially treated wrappers for fruit--Improving type of package for fruits and vegetables--Transportation of perishable foods.

Practical ice making. By A.J. Authenrieth. Chicago. Nickerson & Collins Co., 1931. 202p. Treatise on equipment of ice plants and their operation; Physical principles; Treatment of water and air agitation; Purity of manufactured ice; Operating efficiency; Water filtration systems; Low temperature insulation.

Refrigerated transport. Dairy. v.43, no.516. December 19, 1931. p.320-322. Interior surface of refrigerated spaces is of metal and each compartment is provided with insulated door on near side. There is, in addition, uninsulated compartment for empty containers and another for refrigerating machinery. This was secured by use of "Alfol". It consists of sheets of very thin, highly polished, pure aluminum foil, crumpled, imperfectly flattened, and laid in insulation spaces. Sheets are not tightly packed, (about three per inch thickness of insulation) so that adjacent ones touch at only few points. In this way air cells are formed which offer high resistance to transference of heat by conduction and convection, while bright metal surfaces, owing to their efficiency as reflectors, permit only small transference by radiation.

Refrigeration as a factor in eliminating wastage in food production and distribution. By Gardner Poole. Ice and Refrigeration. v.82, no.2. February, 1932. p.75-77. Development of transportation and refrigerating facilities has made possible saving of millions of dollars worth of food products. Development of quick-freezing as means of preventing waste in perishable foods.

Refrigeration experience in perishable transportation. By F.S. Welsh. Ice and Refrigeration. v.82, no.3. March, 1932. p.190-193. Features of construction of refrigerator cars--Economy in cost and maintenance--Advantages of ice from standpoint of availability and cost.

Tankless ice-making system. By R.S. Wheaton. Power. v.75, no.13. March 29, 1932. p.476-477. "Pak Ice" machine consists, essentially of corrugated liner fitted inside of outer jacket. Ammonia is introduced into space between outer jacket and cylinder liner and water is circulated through liner, with result that evaporation of ammonia in jacket freezes part of water upon fins. Set of scraper blades fastened to rotor mounted on shaft, which is carried in two bearings at ends of liner, is made to revolve inside of liner. Scraper blades remove ice from corrugated liner as it is formed; ice is not allowed to become any thicker than .008 in.

Tests show quick freezing fails to kill spores of poisonous germs. Ice and Refrigeration. v.82, no.2. February, 1932. p.140. Tests in Bureau of Chemistry and Soils have shown that recently developed "quick freezing" of fruits and vegetables does not kill spores of deadly botulinus germ.

York "Kold-Trol". New solid CO_2 (Dry ice) unit for truck bodies which makes possible any desired temperature. Refrigerating World. v.67, no.3. March, 1932. p.15-16, 59. Consists essentially of container for solid CO_2, condensing coil, evaporator coil and thermostatically controlled valve. Condensing coil is in intimate contact with solid CO_2 container and is located at higher level than evaporator coil which

Refrigeration. (cont'd)

is in refrigerated compartment. In operation solid CO_2 in container in contact with condensing coil produces temperature and pressure in that coil very much below that of evaporator coil. This pressure difference causes flow of gas from evaporator coil to condensing coil. Result is rapid evaporation of liquid refrigerant in evaporator coil and absorption of heat from space surrounding it.

Silt.

Silt-sampling apparatus used on Missour River. By R. Whitaker. Engineering News-Record. v.108, no.11. March 17, 1932. p.395. Au type U.S. Geological Survey silt sampler consists of frame that holds pint milk-bottle vertically. After sampler has been lowered to desired depth, small drop-weight is allowed to slide down suspending cable and strike plunger, which drives knife-edge cutter through paper cap sealing bottle and allows water to enter. Float valve under cap seals bottle when about 400 c.c. of water has entered. This sampler has been discarded in favor of Straub silt sampler. Straub sampler is development of Au type sampler. It holds capped milk-bottle vertically. Vertical spring holds cutting plunger one inch above milk-bottle cap. Small drop-weight is allowed to slide down suspending cable and strike upper end of cutting plunger, forcing it through cap. Spring then lifts drop-weight and cutting plunger clear of perforated cap, so that water can enter bottle without obstruction. Lugn cylindrical bed-sediment sampler consists of cylinder that seats on circular base, with stem extending from base through cylinder. To operate sampler rope is attached to eye in stem and apparatus is dragged along river bottom from bridge or small boat. Cylinder tilts down and cuts into bottom material but seats on base again and seals tightly when raised to surface.

Soils.

Characteristics of dispersable organic colloids in peats. By Wilbur L. Powers. Journal of Agricultural Research. v.44, no.2. January15, 1932. p.97-111. Experiments reported undertaken to determine amount and composition of colloids in several peat-profile layers, to learn how base-exchange capacity changes during decomposition of organic materials, and to obtain information as to nature and possible means of increasing or conserving base-exchange capacity of soils.

Composition of soil colloids in relation to soil classification. By Horace G. Byers and M.S. Anderson. Journal of Physical Chemistry. v.36, no.1. January, 1932, p.348-366.

Subsidence and durabilfty of peaty lands. By Wilbur L. Powers. Agricultural Engineering. v.13, no.3. March, 1932. p.71-72. Settlement of peat appears to be greater during first years following drainage and amount of subsidence will depend on depth of drainage as well as depth and composition of peat. Also, erosion of wind or water may cause loss of dry peat. Drainage should be designed to provide for vertical shrinkage of order of 33 per cent.

Spraying and dusting.

Quality must come first. By L.S. Goode. Successful Farming. v.30, no.4. April, 1932. p.74, 76-77. Large orchard must have proper equipment that will insure spraying at the right time.

Steam.

Steam research in Europe and in America. I Mechanical Engineering. v.54, no.4. April, 1932. p.282-285. Abstract of four lectures delivered by Prof. Max Jakob before University of London.

Storage houses and cellars.

Heat treatment for controlling the insect pests of stored corn. By Edgar F. Grossman. 1931. 24p. Florida Agricultural Experiment Station Bulletin no.239.

Sugar beets.

Machines in sugar beet production save labor. Utah Farmer. v.25, no.15. March 10, 1932. p.12. Discussion of survey in California and Colorado.

Tractors.

Farm gas engines and tractors. By Fred R. Jones. 1st ed. N.Y. McGraw--Hill Book Company, Inc., 1932. 485p.

From junkpile to tractor for fifty dollars. Popular Mechanics. v.57, no.2. February, 1932. p.344-348.

Gear loading practice in tractor design. By Louis Jacobi. Agricultural Engineering. v.13, no.3. March, 1932. p.59-60.

Nebraska tractor tests, 1920-1931. 1932. 32p. Nebraska. Agricultural Experiment Station Bulletin no.265.

Some factors affecting the economic use of tractor engines at part loads. By E.G. McKibben and A.P. Aglibut. Agricultural Engineering. v.13, no.3. March, 1932. p.73-74. Factors considered: 1. Fuel requirements. 2. Cost of fuel per gallon. 3. Overhead or fixed charges on supplementary engine. 4.Hours of operation at given power per year.

Study of tractor stop-hitches. By Arthur W. Clyde. Agricultural Engineering. v.13, no.3. March, 1932. p.75-78. Dynamics of stopping declutched tractor; Field tests with type I hitch; Design of type II stop-hitch; Summary.

Water.

Underground water rights: Letter from Sheldon K. Baker, Engineering News-Record. v.108, no.13. March 31, 1932. p.483.
In the opinion of the writer, the court, instead of clarifying the law and removing obstructions to future progress in water development in Arizona, was more successful in calling attention to fact that out law was so inadequate for present-day conditions that in order for development to continue there must be revision of our water code that will give to our underground waters standing in law to which they are entitled by all rules of common sense.

Water. (cont'd)

Water equivalent of snow: Letters from R. E. Horton and G.D. Clyde. Agricultural Engineering. v.13, no.3. March, 1932. p.80.

Weeds.

Experiments in weed eradication by machine applied chemicals. By Kenneth R. Frost. Agricultural Engineering. v.13, no.3. March, 1932. p.79-80.

New wide-spread weeder. Farm Implement News. v.53, no.13. March 31, 1932. p.13.

Why cultivate and how. By J. Brownlee Davidson. Successful Farming. v.30, no.4. April, 1932. p.9, 70-71. Under normal conditions with properly prepared seedbed, most important reason for cultivation is to destroy weeds.

Windmills.

Wind power takes new turn: Editorial. Southern Power Journal. v.50, no.3. March, 1932. p.7. United Engineers and Constructors, Inc., and Baldwin Locomotive Works are building in N.J. an experimental plant to generate electric current making use of wind operated rotors.

Wood.

Chemical methods of wood preservation. By T.H. Fairbrother. Paint. v.2, no.2. February, 1932. p.38-39.

Electrical conductivity method for determining the effective capillary dimensions of wood. By Alfred J. Stamm. Journal of Physical Chemistry. v.36, no.1. p.312-325. January, 1932.

Utilization of wood formerly wasted. By T.J. Mosley. Manufacturers Record. v.101, no.9. March 3, 1932. p.24-26.